

## ABSTRACT

Simulation, once the magic wand of a simulation professional, has the opportunity to become a common tool for analyzing and solving real-world problems in today's fast paced, dynamic environment. Graduating students will have to be prepared to take advantage of that opportunity. Applying simulation today isn't like completing an exercise in a traditional text. Even case studies don't teach students how to actually solve real-world problems. There are good reasons to consider a change. The book *Applied Simulation Modeling and Analysis using FlexSim*, in use for two years, supports a fresh approach for teaching simulation. Its organization, application techniques, blending of theory with practice, and the introduction of topics not normally covered in traditional texts make it different. This book is all about applying simulation.

## 1 INTRODUCTION

To be a factor in today's economically-driven environment, simulation must earn its way by providing a value-added contribution to solving real world problems. Traditional approaches for teaching simulation courses tend to follow a well-worn path utilizing textbooks that focus on simulation theory and software programming. Less emphasis is given to application techniques and methods.

Indeed the challenge facing educators today is how to cover a blend of theory, practice, and problem solving techniques in an already crowded class schedule. The book *Applied Simulation Modeling and Analysis using FlexSim* was developed by teachers and practitioners to address those challenges.

Change is never easy, especially in an education environment. However, there are seven reasons to review current simulation education objectives and the supporting textbooks that are available.

## 2 SEVEN REASONS FOR CHANGE

### 2.1 The Role of Simulation has Changed

Simulation started as a technology practiced by experts who understood and could utilize the software applications. Companies once employed large groups to carry out simulations. However, when the economy first began to tighten about 20 years ago, the simulation groups were among the first to go.

### 2.2 Students will be Involved in Simulation But Not at the Same Level of Expertise

During their careers, students will very likely become involved with simulation to some degree. They may use simulation occasionally to address specific issues or analyze an operation. Such Occasional users may include a manager who authorizes or directs the use of simulation, someone who runs pre-built simulations to analyze strategic decisions, a business unit leader, marketing person, or operations person such as team leader. The Occasional user typically has much more knowledge of the purpose and domain of the simulation than of the simulation application itself. An estimate of the percent of simulation users at the various levels are shown in Figure 3.

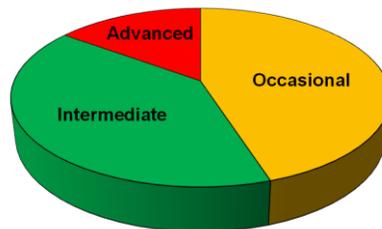


Figure 3: Projected simulation user levels

### **2.3 Applying Simulation in the Real World isn't Like Doing a Problem in Class**

Students who think that the practical application of simulation will be like a traditional textbook problem (or even a case study), where the problem is completely spelled out with all the relevant data attached, will be ill-prepared to address a real problem.

### **2.4 Simulation Software has Become Easy to Use**

“Ease of Use” is a common and possibly over-used term to attempt to describe how easily simulations can be built. But Ease of Use can be a two-edged sword. Simulation professionals and educators know that simulation is neither a black box nor a silver bullet and that its incorrect use can lead to inaccurate conclusions and a lack of confidence in the technology.

### **2.5 Basic Theory is Still Relevant But Must Relate to Application**

Statistical theory provides the backbone to simulation efforts. However, for students to stay focused on simulation principles, the theory should be presented in a way that relates directly to the application of simulation. *Applied Simulation Modeling and Analysis using FlexSim* addresses this issue in Chapters 9, 10 and 11.

### **2.6 Simulation Applications have Broadened in Scope**

Simulation isn't just about manufacturing anymore. Students need to appreciate the wide variety of domains in which simulation is applied. Exercises in *Applied Simulation Modeling and Analysis using FlexSim* cover a wide variety of operations and situations.

### **2.7 Educators can Now have Support Systems**

Developing materials for teaching a subject such as simulation is very time consuming, especially in light of all the other demands on an educator's time. The internet has provided an opportunity for collaboration that can help with the problem. FlexSim and the authors have joined together to provide support and community web pages for both students and educators.

## **Speaker Bio**

### **Bill Nordgren**

Bill is President/CEO of FlexSim Software Products. He was a co-founder of ProModel Corporation in 1988 and was Vice President until 1992. In 1993 Bill founded F&H Simulations, Inc. (Now FlexSim Software Products Inc.) and introduced Taylor II, Taylor ED, and FlexSim into the market.

Bill has authored several papers dealing with simulation project management, queuing theory, and has taught hundreds of classes in the use of simulation software. Bill is a co-author of “Applied Simulation: Modeling and analysis using FlexSim”. He is listed in Marquis Who's Who in America for his accomplishments in the advancement of simulation technology. Bill received a Bachelor of Science in Manufacturing Engineering Technology, and a Master of Science in CIM (Computer Integrated Manufacturing) from Brigham Young University.